

**CERTIFIED ENGINEERING DESIGN, P.A.**

810 W. Douglas, Suite C  
Wichita, KS 67203  
(316) 262-8808 Office  
(316) 262-1669 Fax

**LETTER OF TRANSMITTAL**

DATE: June 9, 2006

TO: Mr. Scott Lindebak  
Engineering Division  
City of Wichita  
7th Floor, City Hall  
455 North Main  
Wichita, KS 67202

SUBJ: Spangles Addition

FROM: Harlan D. Foraker, P.E. *HDF*

COMMENTS: Attached please find a drainage plan for the above referenced project. Please review and if you have any questions or comments, please contact me at (316) 262-8808.

Attachments

1 Tow Shop



2 Subject Site to MH



3



4

MH w/ surface contours

# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

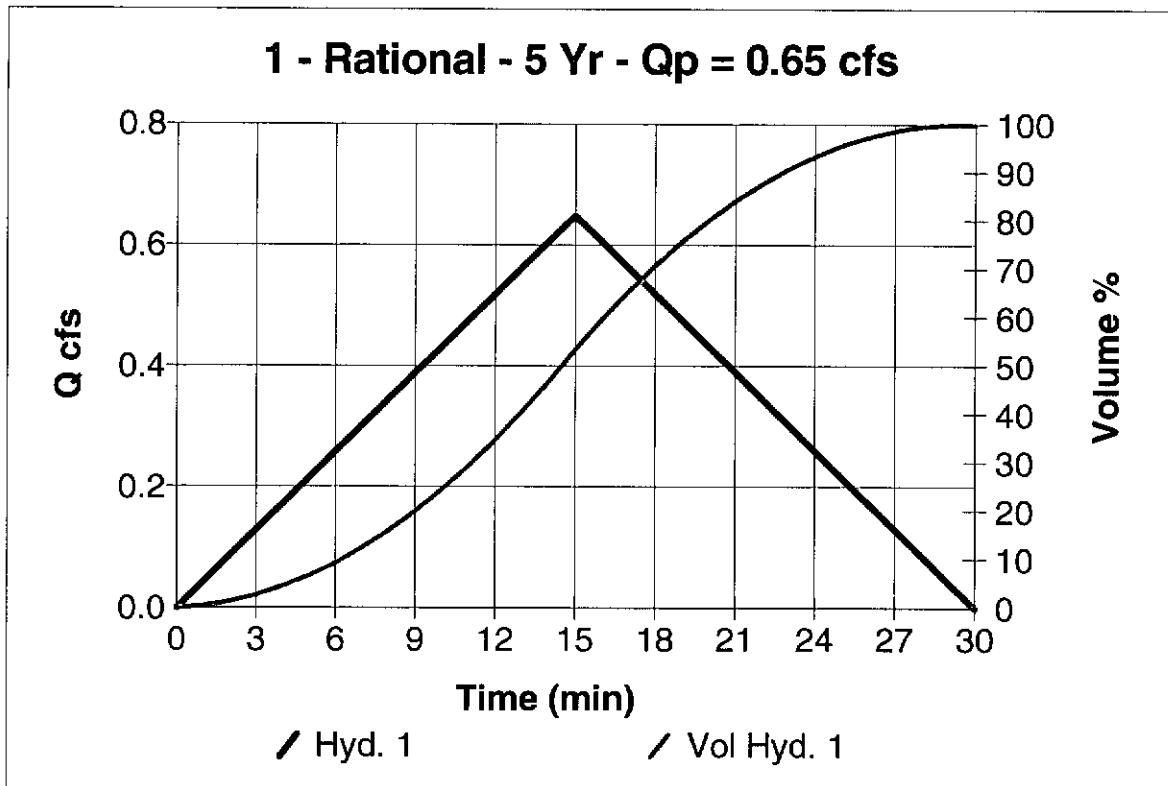
## Hyd. No. 1

Offsite Developed from Taco Shop

Hydrograph type = Rational  
Storm frequency = 5 yrs  
Drainage area = 0.2 ac  
Intensity = 4.663 in/hr  
IDF Curve = SedgwickCounty1.idf

Peak discharge = 0.65 cfs  
Time interval = 1 min  
Runoff coeff. = 0.87  
Time of conc. (Tc) = 15 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 584 cuft



# Hydrograph Plot

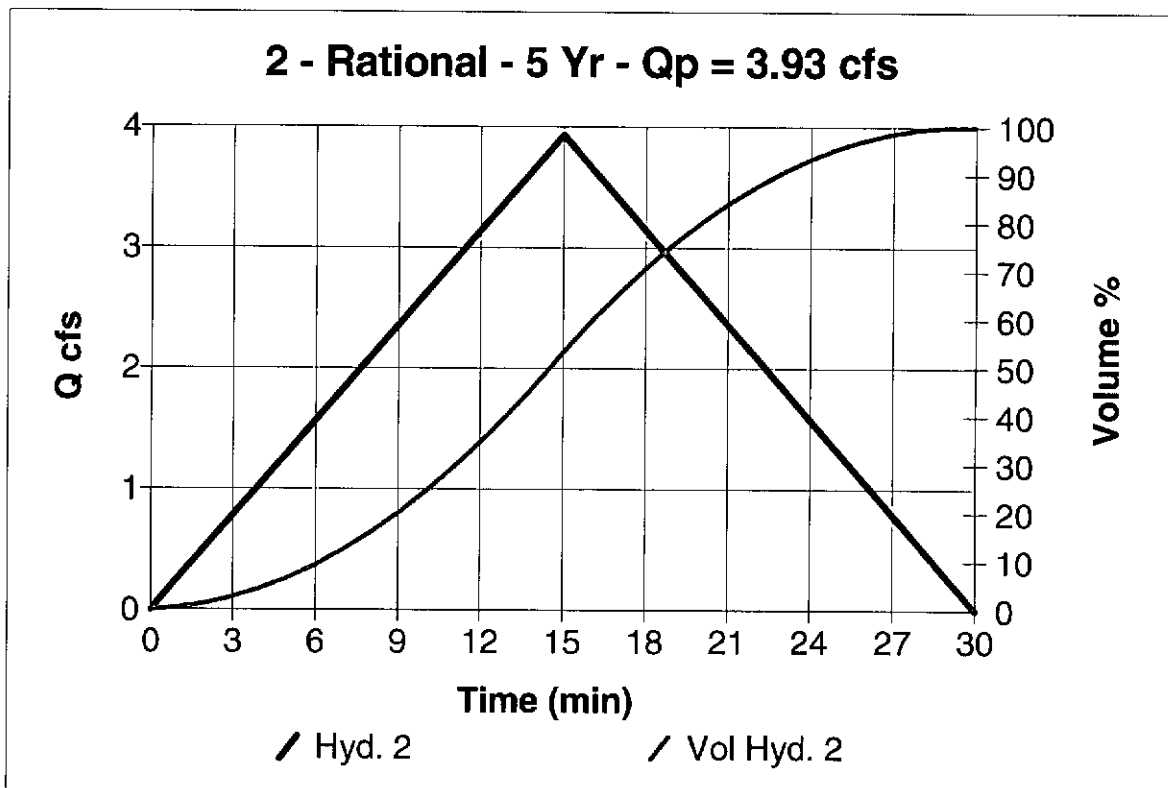
Hydraflow Hydrographs by Intelisolve

## Hyd. No. 2

On-Site Developed

Hydrograph type	= Rational	Peak discharge	= 3.93 cfs
Storm frequency	= 5 yrs	Time interval	= 1 min
Drainage area	= 1.0 ac	Runoff coeff.	= 0.87
Intensity	= 4.663 in/hr	Time of conc. (Tc)	= 15 min
IDF Curve	= SedgwickCounty1.idf	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 3,541 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

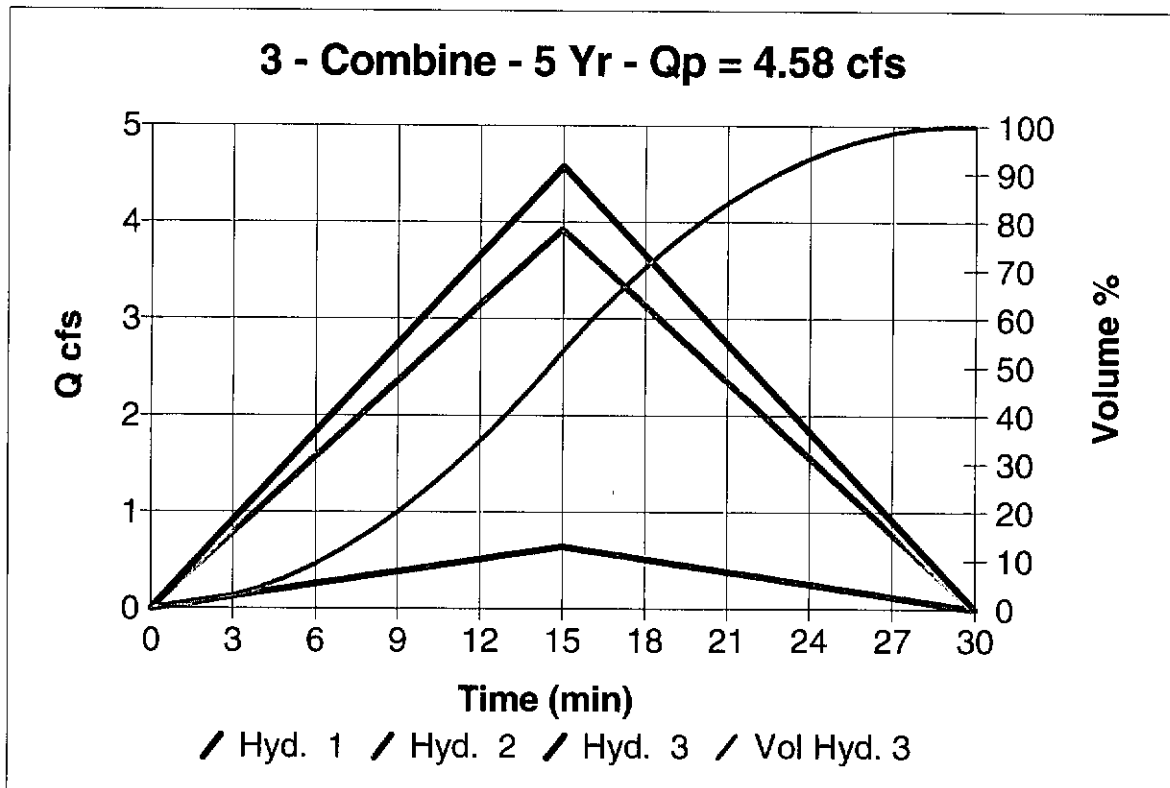
## Hyd. No. 3

Combined into Inlet

Hydrograph type = Combine  
Storm frequency = 5 yrs  
Inflow hyds. = 1, 2

Peak discharge = 4.58 cfs  
Time interval = 1 min

Hydrograph Volume = 4,125 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

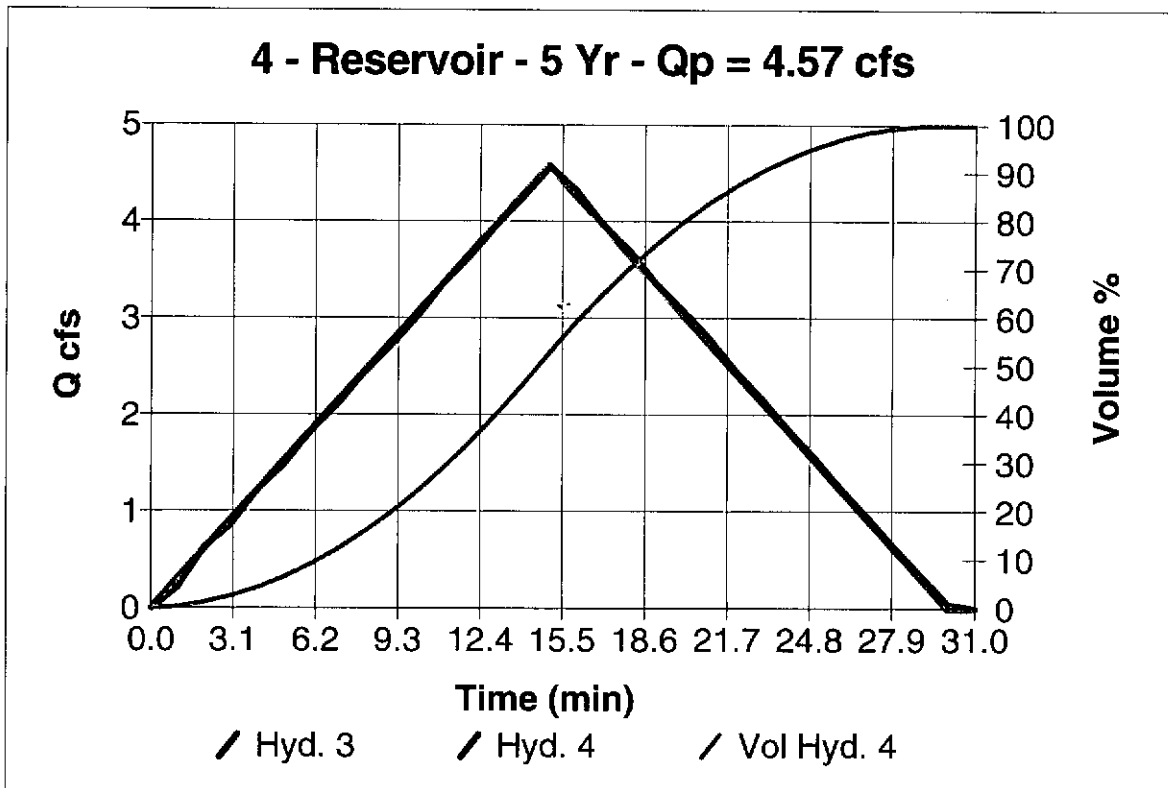
## Hyd. No. 4

Hydrograph type = Reservoir  
Storm frequency = 5 yrs  
Inflow hyd. No. = 3  
Max. Elevation = 1325.63 ft

Peak discharge = 4.57 cfs  
Time interval = 1 min  
Reservoir name = MH Inlet Locati  
Max. Storage = 20 cuft

Storage Indication method used.

Hydrograph Volume = 4,126 cuft





# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

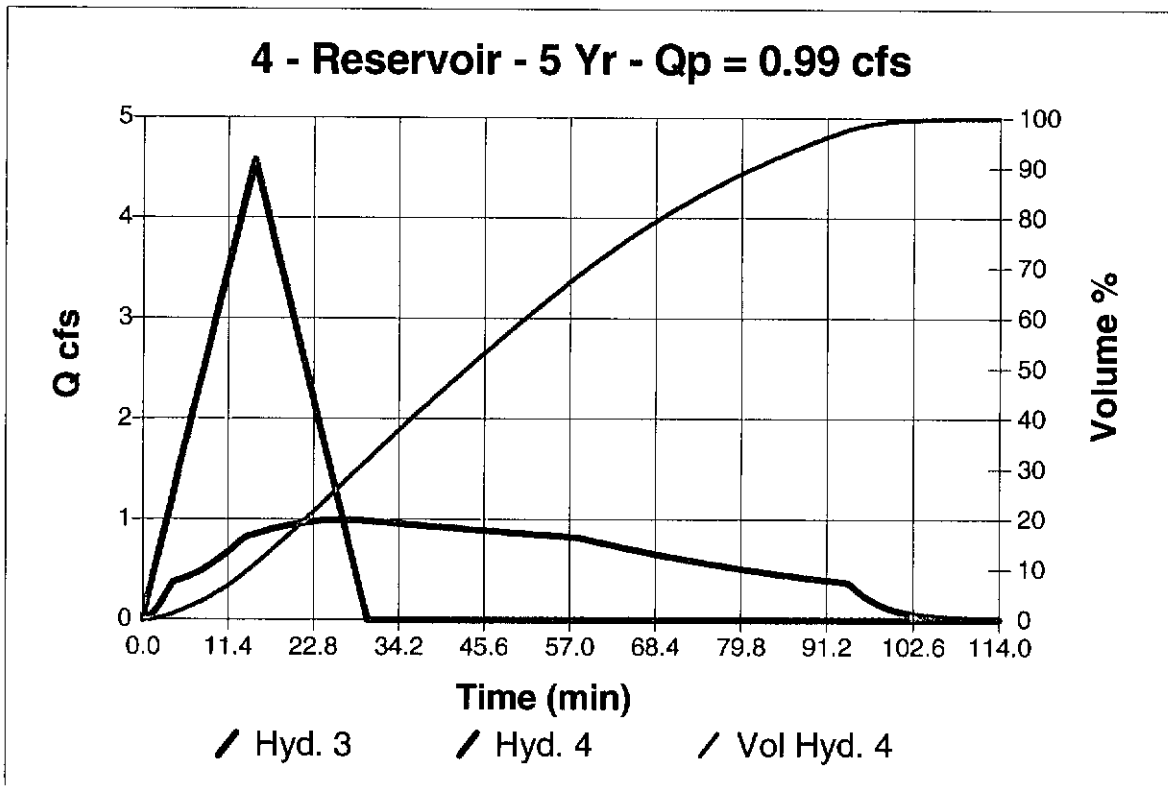
## Hyd. No. 4

Hydrograph type = Reservoir  
Storm frequency = 5 yrs  
Inflow hyd. No. = 3  
Max. Elevation = 1329.75 ft

Peak discharge = 0.99 cfs  
Time interval = 1 min  
Reservoir name = MH Inlet Locati  
Max. Storage = 2,935 cuft

Storage Indication method used.

Hydrograph Volume = 4,125 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

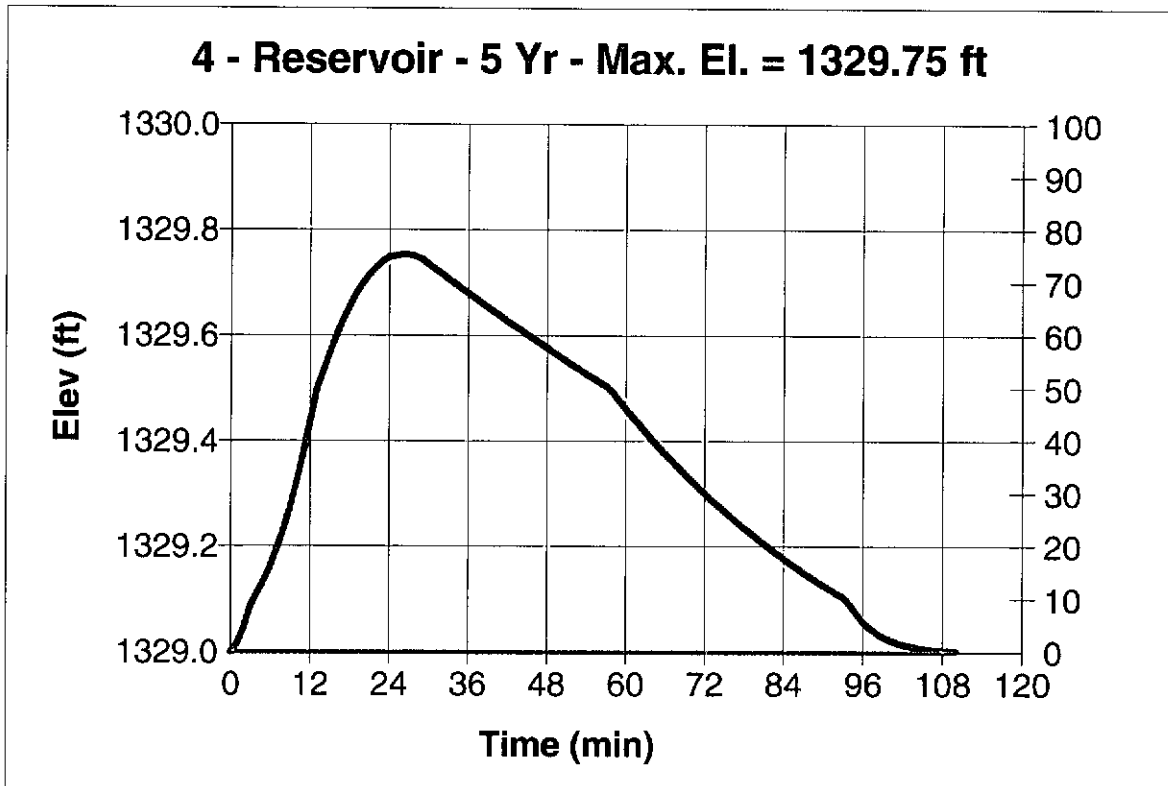
## Hyd. No. 4

Hydrograph type = Reservoir  
Storm frequency = 5 yrs  
Inflow hyd. No. = 3  
Max. Elevation = 1329.75 ft

Peak discharge = 0.99 cfs  
Time interval = 1 min  
Reservoir name = MH Inlet Locati  
Max. Storage = 2,935 cuft

Storage Indication method used.

Hydrograph Volume = 4,125 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

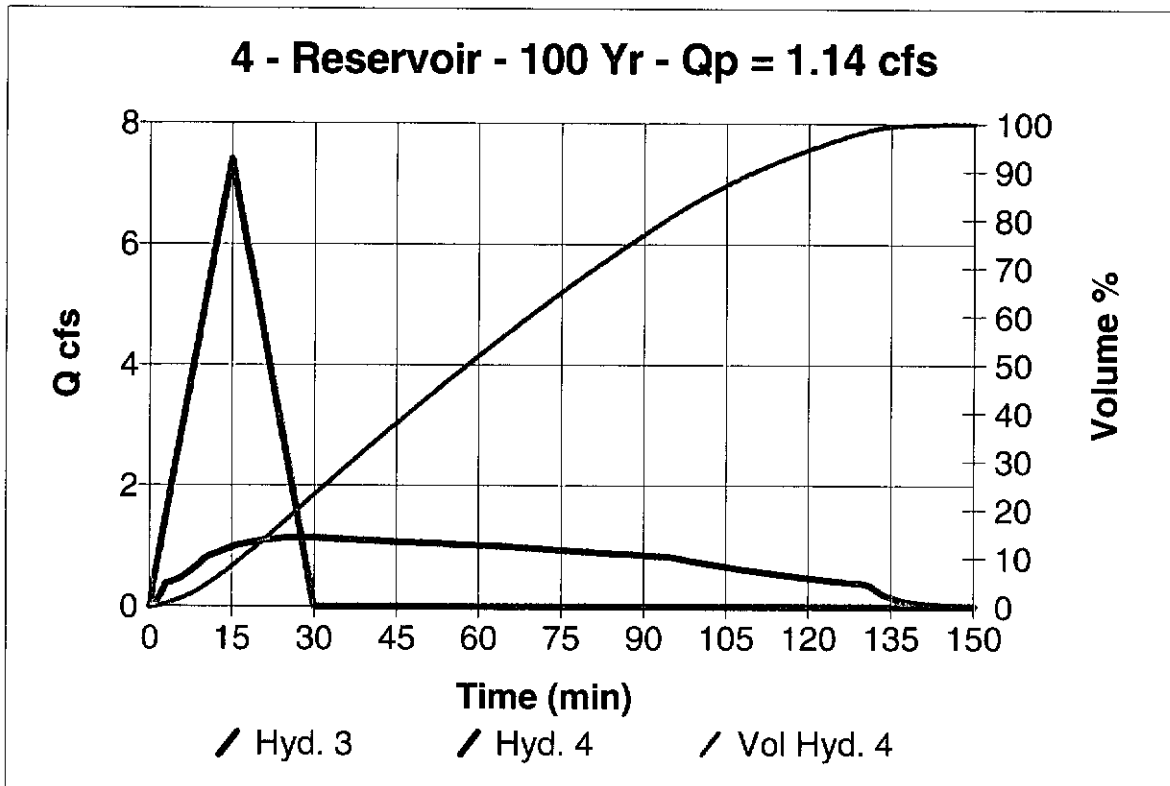
## Hyd. No. 4

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Inflow hyd. No. = 3  
Max. Elevation = 1329.96 ft

Peak discharge = 1.14 cfs  
Time interval = 1 min  
Reservoir name = MH Inlet Locati  
Max. Storage = 5,240 cuft

Storage Indication method used.

Hydrograph Volume = 6,665 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

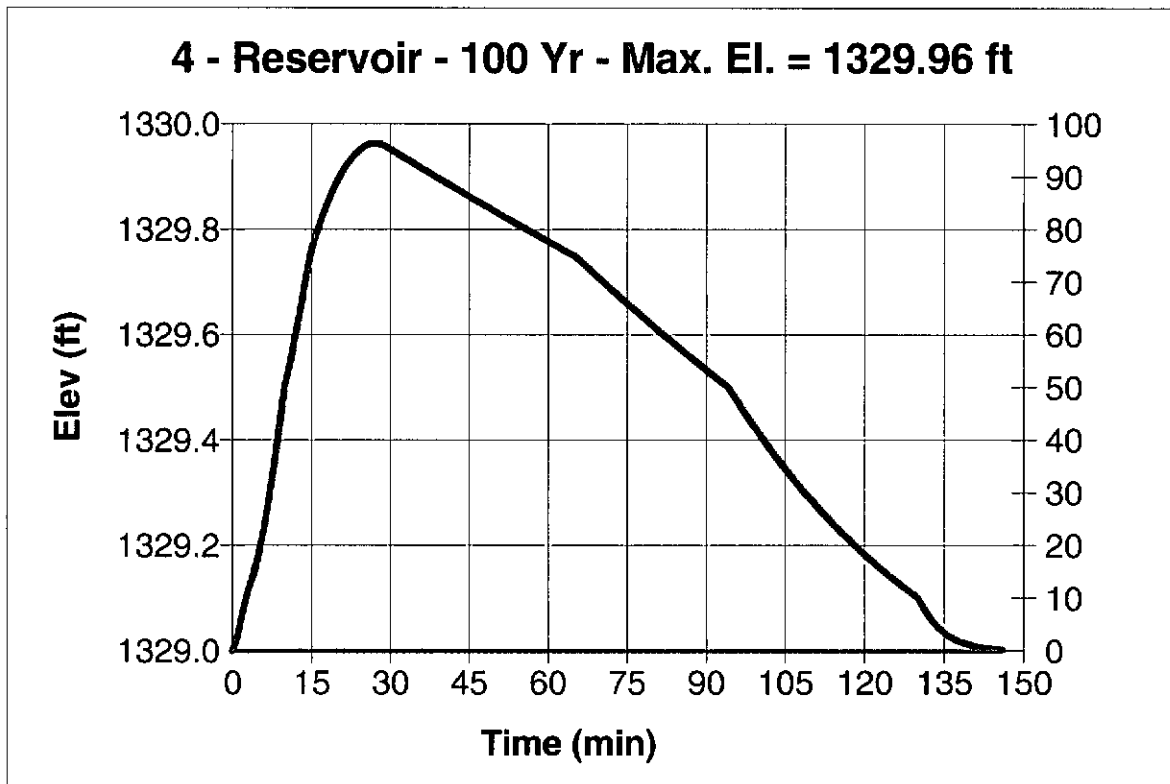
## Hyd. No. 4

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Inflow hyd. No. = 3  
Max. Elevation = 1329.96 ft

Peak discharge = 1.14 cfs  
Time interval = 1 min  
Reservoir name = MH Inlet Locati  
Max. Storage = 5,240 cuft

Storage Indication method used.

Hydrograph Volume = 6,665 cuft



PROJECT: Spanglers Addition

DATE 6/9/06

LOCATION: Harry + Rock Road

BY CKW CKD \_\_\_\_\_

CLIENT: Winter Architects

JOB NO. \_\_\_\_\_ SHEET NO. 1 OF 1

5 year Retention

Target cfs = 0.96 cfs (5 years)

Orifice Equation  $\rightarrow Q = CA\sqrt{2gh}$

C = has a value of 0.60

A = area in sq. ft.

g = the constant value of 32.2

h = depth in feet of water over the grate

$$Q = (0.60)(0.24)\sqrt{2(32.2)(0.1)} = 0.37 \text{ cfs} \rightarrow 0.1' \text{ depth}$$

$$Q = (0.60)(0.24)\sqrt{2(32.2)(0.5)} = 0.82 \text{ cfs} \rightarrow 0.5' \text{ depth}$$

$$Q = (0.60)(0.24)\sqrt{2(32.2)(1.0)} = 1.16 \text{ cfs} \rightarrow 1.0' \text{ depth}$$